



# Optimizing Your Parts Cleaning System

*Ecology Fact Sheet*

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**Y**ou may be able to save money, reduce regulation and liability, and solve your cleaning problems by modifying your current cleaning equipment or procedures. The following step-by-step checklist can show you how.

## 1. How clean must the parts be?

By knowing your minimum cleanliness needs, you can avoid the cost of over-cleaning.

- ✓ What are your minimum functional cleanliness requirements (e.g., meeting paint adhesion requirements, plating quality, customer preference, etc.)?
- ✓ Are there contract specifications for cleanliness that must be followed?
- ✓ Are there industry tests, standards or recommendations?

If specifications or standards do not exist, select a convenient method for testing cleanliness, and use it to determine the minimum cleanliness acceptable to you and your customers. Look for American Society for Testing Materials cleanliness and performance testing standards (your local library may be able to assist you). For further information on testing methods, you may also wish to obtain an article by Anselm T. Kuhn, titled "Is It Clean? Testing for Cleanliness of Metal Surfaces", which appeared on page 25 of the periodical *Metal Finishing*, September 1993. Your local library may be able to locate this issue, if necessary.

## 2. Can cleaning be eliminated or reduced?

Measures that may reduce or eliminate the need to clean could include:

- ✓ modifying upstream/downstream processes to avoid or reduce the need to clean
- ✓ using greaseless or water-based binders for buffing
- ✓ reducing the entry of tramp oils into machine coolants and cutting oils
- ✓ reducing contamination during storage, transport, and handling
- ✓ specifying that parts are delivered to your shop clean
- ✓ reducing the number of times a part is cleaned
- ✓ switching to lubricants or coolants that are more easily cleaned by your system

### 3. Have you tried these efficiency measures?

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You may be able to save money and make your system clean more efficiently by using these methods:

- ✓ Make sure that your cleaning system is installed and operated according to the manufacturer's instructions.
- ✓ Pre-clean parts to remove heavy contamination and increase cleaner life. A dirtier, "sacrificial" cleaning tank might be used before the main cleaning operation.
- ✓ Monitor the cleaner's cleaning ability prior to replacing: when is it really too spent to perform adequately?
- ✓ Remove sludge on a routine basis.
- ✓ Use tight-fitting lids to prevent solvent loss from evaporation.
- ✓ Refurbish your cleaner to extend its useful life. Filters on parts washers have been shown to greatly extend cleaner life. Gravity separation can divide sludge and oils from some cleaners. Distillation can be used to purify many solvents.
- ✓ Prevent contamination of cleaner with trash, other liquids (especially chlorinated solvents like carburetor cleaner, lubricants, and aerosols).
- ✓ Keep tanks and containers closed and labeled.
- ✓ Automate the cleaning process.
- ✓ Use countercurrent processes (use dirty solvent for initial cleaning and clean solvent for final cleaning).
- ✓ Reduce drag-out of cleaner.
- ✓ Optimize heat, agitation, retention time, etc. (temperatures should be kept 50°F below the flash point to limit fire hazard).
- ✓ Improve water purity.
- ✓ Centralize and consolidate cold cleaning to minimize vapor losses.
- ✓ Ask your suppliers for help in optimizing your system.

One shop extended the life of its aqueous cleaner by pre-cleaning parts with aluminum shot. This shop reduced its waste of aqueous cleaner by 48,000 gallons a year. An annual savings of \$40,000 provided a payback period of 2 years.

### For More Information:

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Ecology has experienced Pollution Prevention Consultants available to advise you on solvent substitution techniques and issues. They can provide information over the telephone, or make educational (non-enforcement) visits your work site to provide free technical assistance on solvent substitution, economic considerations, pollution prevention opportunities, and suppliers. Use the regional phone numbers below to ask for a Toxics Reduction Specialist.

Northwest Region	(206) 649-7000	Central Region	(509) 456-2926
Southwest Region	(360) 407-6300	Eastern Region	(509) 575-2491

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If you have special accommodation needs or require this document in alternative format, please contact the Hazardous Waste and Toxics Reduction Program at (360) 407-6700 (voice) or (360) 407-6006 (TDD).

Ecology's telecommunications device for the deaf (TDD) number is (360) 407-6006. Regional TDD numbers are:

CRO (TDD) (509) 454-7673  
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